

APPENDIX A

DRAFT

FISH AND WILDLIFE COORDINATION ACT REPORT

FOR THE

BUREAU OF RECLAMATION'S

POTHOLES RESERVOIR RESOURCE MANAGEMENT PLAN

PREPARED BY

U.S. FISH AND WILDLIFE SERVICE
UPPER COLUMBIA RIVER BASIN SUB-OFFICE
EPHRATA, WASHINGTON



PREPARED FOR

U. S. BUREAU OF RECLAMATION
COLUMBIA IRRIGATION PROJECT
EPHRATA, WASHINGTON

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Introduction

Potholes Reservoir was developed by the Bureau of Reclamation (Reclamation) as a collection basin for irrigation return flows within the Columbia Basin Irrigation Project (CBIP). Water from Potholes Reservoir is then used for the southern portion of the CBIP. Reclamation must manage Potholes Reservoir to meet irrigation commitments, assure public safety, and protect property. Aside from those constraints, they have considerable flexibility in managing for a variety of other important resources, such as fish and wildlife and their habitats, cultural resources, recreational activities, education, etc. Currently, Reclamation has leased management of the majority of project lands to the Washington Department of Fish and Wildlife (WDFW), Washington State Parks and Recreation Commission (WSPRC), and Grant County Sheriff's Department. Reclamation is proposing to complete a Resource Management Plan (RMP) for Potholes Reservoir to guide future management efforts.

This draft Fish and Wildlife Coordination Act Report (CAR) is provided to Reclamation to assist with the development of the Potholes Reservoir RMP and environmental impact analysis. It has been prepared by the U.S. Fish and Wildlife Service (Service) under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). This draft CAR, once it has been finalized, will constitute the report of the Service and the Department of the Interior pursuant to section 2 (b) of the FWCA, on the proposed Potholes Reservoir RMP.

The information for this draft CAR came from previous studies and resources such as the Service's March, 2000 Planning Aid Report on Habitat Evaluation Procedures at the Potholes Reservoir study area, Washington State GAP Analysis (Cassidy et al. 1997); Washington Department of Fish and Wildlife's (WDFW) Wildlife Heritage Database; the Breeding Bird Survey database, information on the area in our files; several site visits and surveys; maps; aerial photos; and conversations with personnel with Reclamation, WDFW, and the Dames and Moore consulting firm.

Study Area

Our study area included the land owned by Reclamation at the Potholes Reservoir near Moses Lake, Washington. The study area is within Daubenmire's (1988) original *Artemesia-Agropyron* zone, which is the driest zone in the state (Franklin and Dyrness 1973). This region of steppe and shrub-steppe vegetation includes most of central and southeastern Washington state where bunchgrass and sagebrush communities were historically dominant. Before construction of Potholes Reservoir vegetation of the Potholes area was arranged in zones along a moisture gradient (Harris 1954). These zones from dry to wet were: 1) no vegetation on high, dry, shifting sand dunes; 2) *Psoralea* sp. on the windward faces of lower shifting dunes with sand dock and willows on the leeward faces; 3) rabbitbrush, sagebrush, spiny hopsage, cheatgrass, Indian ricegrass and alkali cordgrass on semi-stable sand dunes 3)

saltgrass-Nevada clubbrush meadows; 4) Baltic rush-sedge meadows; 5) bulrush-cattail; and 6) submerged aquatic plants. Permanent and temporary potholes (800-1,000), flooded flats, creeks fed by spring fed potholes, and extensive areas of marshlands covered the area (Harris 1954). Overgrazing in the early part of the century resulted in the destruction of native plant cover and the formation of a broad area of active sand dunes (Zook 1978). Fire also likely impacted the native shrub-steppe habitat. Due to the arid climate and sandy soils, recovery of native vegetative communities is slow. Additionally, Franklin and Dyrness (1973) indicate that the uplands here are fragile and susceptible to invader plant establishment on disturbed sites. The competition by these invaders, many of which are non-native, further hampers recovery of native communities.

The habitat within the study area was heavily influenced by the creation of Potholes Reservoir behind O'Sullivan Dam, which was built about 50 years ago. The shallow water table behind the reservoir created many wetlands within an arid landscape dominated by shifting sand dunes, while also destroying most of the existing wetlands by submerging them under the reservoir.

Various recreational activities associated with the development of Potholes Reservoir and opening up associated lands to public use, has impacted habitats. Fishing, hunting, off-road vehicle (ORV) use, boating, camping, and wildlife observation appear to be popular activities within the study area. By 1980, recommendations to limit boats and fishing in some areas were being made by Washington Department of Game (WDG) biologists (Friesz 1980, Zook 1980), in order to protect nesting birds and wintering waterfowl. WDFW (1997) found that ORV use within the study area was increasing and had caused significant detrimental impacts to wildlife within the study area. ORV use is allowed in the northeast portion of the study area and is managed within zones. ORV use is allowed year-round in the Green Zone (about 700 acres), is restricted to the period July 1 to October 1 in the Yellow Zone (about 1,500 acres), and is closed year-round in the Red Zone. While the majority of the ORV use occurred within the Green and Yellow zones, they also noted impacts from ORV use in the Red Zone. The impacts from ORV use to habitats was evident when looking at percent cover of bare ground which was progressively more when going from the control site with 23 % bare ground, to the Red Zone with 31 %, to the Yellow Zone with 41 % and finally to the Green Zone which had 64 %. The percent cover of cryptogams on the soil surface was also linear with 11 % at the Green Zone up to 55 % at the control site. Cryptogams are layers of algae and lichen that form a crust on undisturbed ground. The removal of vegetation and cryptogams, as has occurred with ORV use, causes increased soil temperatures, alters the natural dune profile and allows weeds to invade and spread (WDFW 1997).

Aside from ORV use, other dispersed recreational activities have impacted habitat as well. For example, “informal” roads leading to popular fishing spots, undeveloped boat launching areas, camping sites, etc., have removed a certain amount of habitat. Their disturbance has also allowed various weeds to proliferate along the edges of the roads and into adjacent habitats. Camping and parking areas have caused similar losses. Habitat has been impacted to some degree by trash which is sometimes left at dispersed sites. Activities at dispersed sites increase the risk of fires, which could burn large areas of native habitat.

Shrub-steppe - Much of the surrounding area has been converted to irrigated agriculture, with development and expansion of local communities also changing and eliminating historic habitat. The remaining shrub-steppe habitat has been grazed, heavily at times, which has reduced the quality for various wildlife species. The original overstory in the uplands was dominated by big sagebrush, but has been largely replaced by green and gray rabbitbrush. Grasses are now mainly cheatgrass, needle and thread, Indian ricegrass, and some wheatgrasses. Big sagebrush and bunchgrasses are now generally found in isolated pockets, with larger areas present in the North Potholes Reserve.

Unfortunately, shrub-steppe habitat throughout the Columbia Basin has suffered significant degradation from conversion to agriculture, overgrazing and other factors (Dobler et al. 1996). This has helped reduce distributions and populations of several wildlife species, causing many to receive special designations from WDFW and the Service because of their rarity. In addition, the GAP analysis of Washington State (Cassidy et al. 1997) found that the largest gap in the protection of biodiversity in Washington is in the shrub-steppe zone.

Grasslands - The grasslands in the study area occur as relatively small pockets scattered throughout the study area. They are comprised primarily of cheat grass, native bunchgrasses, and a variety of other forbs. These grasslands are most likely the result of past fires or other disturbances which occurred in shrub-steppe habitats.

Wetlands - Many of the wetlands in the study area are lined by willow, cattail, and bulrush and are vegetated with various annuals as water levels recede throughout the year. Most wetlands now lack submerged aquatic vegetation due to carp. Carp destroy rooted aquatic vegetation and cause turbidity by roiling the water (USFWS 1980). Emergent vegetation at some wetlands is limited due to the extreme water fluctuation in the reservoir (Zook 1978). Wetlands within the Green Zone are sparse because this zone is higher and set back further from the reservoir than the Yellow and Red zones. The Yellow Zone has many wetlands and is more densely vegetated than the Green Zone. Most wetland

perimeters are vegetated, although some lack vegetation due to extensive ORV use. Wetlands in the Red Zone often support stands of willow and dense perimeters of bulrush and cattails.

Riparian areas - Riparian areas are estimated to provide less than one percent of the land base in the Pacific Northwest yet support the greatest diversity and abundance of wildlife that exist in the arid portions of the region (USFWS 1990). WDFW (1995) states that about 90 percent of Washington's land-based vertebrate species use riparian habitat for essential life activities. They point out that the high wildlife value of these areas is derived from the structural complexity of vegetation, connectivity with other ecosystems, high edge-to-area ratio, abundant food, water and a moist and mild microclimate. Unfortunately, quality riparian habitat has become relatively rare in the Columbia Basin due to arid conditions and land use activities such as grazing, conversion to cropland, and the inundation of lands by reservoirs. Since the inundation by Potholes Reservoir, willow and black cottonwood areas have developed along the margin of the reservoir, on some islands, and in some of the many wetlands which developed after it was constructed and the Columbia Basin Irrigation Project began. Riparian shrub communities are more common than riparian forest, which occur mainly in North Potholes Reserve. Russian olive is also a component of the overstory in some of the riparian areas and is increasing. While it does provide cover for some species, its propensity to take over native habitats, which it has done in some areas of the study area, is not desirable for most wildlife species. Native willow communities are preferred over Russian olive for several reasons (Brown 1990, USFWS 1997).

Islands - There are numerous islands in Potholes Reservoir and their numbers fluctuate depending on the reservoir water level. Because of the fluctuating water levels, the majority of these sand islands are mostly bare of vegetation. Aside from providing habitat for some wildlife species, they are also used for recreational activities; including, fishing, hunting, camping, and picnicking.

Noxious weeds - Noxious weeds are a common problem in the study area and generally invade and occupy sites that have been previously disturbed by fire, livestock grazing, ORV use, and/or dispersed camping. In Washington, a weed is any plant species that is not native to the state. Weeds typically interfere with the maintenance of healthy and diverse ecosystems. Consequently, weed control is an integral part of resource management as non-natives can displace native plant species and are often of lower forage value to wildlife and difficult to extirpate once established. Other wildlife requisites, such as cover and nesting habitat, are also affected by the replacement of native plants by weedy species.

Cheatgrass, one of the most common weeds found in the study area, has invaded many areas where native perennials have been overused and/or eliminated. There is little evidence that cheatgrass will relinquish a site once occupied due to its highly competitive ability. Other common noxious weeds include knapweeds (*Centaurea* sp.), Canada thistle (*Cirsium arvense*), kochia (*Kochia scoparia*), Russian thistle (*Salsola kali*), and purple loosestrife (*Lythrum salicaria*). The proliferation of these undesirable plants is managed through the implementation of an integrated weed management program between Reclamation, the State of Washington, and the Noxious Weed Control Board of Grant County.

Description of the Project

Information on Reclamation's proposed RMP alternatives was obtained from a January, 2000 draft copy of the Alternatives chapter of the RMP draft Environmental Impact Statement. Currently, Reclamation has three alternatives to address the goals and objectives agreed to for a Potholes Reservoir RMP. These include the Preservation/Enhancement Alternative (Alt. A), the Recreational Development Alternative (Alt. B) and the Conservation Alternative (Alt. C). In addition, the "No-action" Alternative includes the actions and developments likely to occur in the absence of adopting and implementing a RMP for Potholes Reservoir. Many of these actions are either required to meet existing Reclamation or federal law, policy, or regulations; state or local regulations; or are authorized by existing management plans or state policies in effect at Potholes Reservoir. These actions are common to all of the alternatives. A sampling of some of these actions include:

- no motorized land vehicle access to North Potholes Reserve
- use sign and other education tools and other methods to control spread of weeds
- continue to maintain a baseline for reservoir water quality data
- work with user groups to encourage cleanup activities
- coordinate ORV management strategy with WDFW to provide a mechanism to minimize damage to wildlife and habitat
- investigate fee-for-use as a potential source of funds for maintenance and improvement of recreational facilities, for waste disposal services, and/or to pay for management and enforcement activities
- develop agreements with mosquito control agencies to define allowable activities on federal lands

In addition, there were numerous management actions proposed that were common to each of the RMP action alternatives (A, B, and C), some of which include:

- various soil conservation and erosion control measures
- based on study results, develop and implement effective fisheries management strategies, such as: preventing inadvertent introductions to Columbia National Wildlife Refuge and Crab Creek; protecting and adding desirable habitat features; promoting underutilized fisheries; maintain certain areas as carp-free waters; developing management approaches, if necessary to control bird predation on Potholes Reservoir fisheries
- protect and enhance bald eagle wintering habitat
- based on study results, develop and implement effective management strategies to perpetuate wildlife diversity, such as: establishing rules to control disturbance factors to protect sensitive habitats and vulnerable wildlife populations; protecting and enhancing desirable habitat features; promote and maintain large populations of key species (e.g. waterfowl, beaver, colonial nesting birds); develop interpretive trails and sites to expand watchable wildlife opportunities
- revegetate closed roads, trails and other disturbed areas with native vegetation
- develop sampling programs to determine any problems with water quality, sediment quality or contaminants in fish
- monitor impacts at dispersed recreational use areas and modify management if needed
- establish a near-shore no-wake zone in appropriate areas of the Reservoir
- locate and describe cultural resource sites in a Cultural Resources Management Plan
- develop agreements with appropriate parties to provide protection and suppression services for wildfires

Preservation/Enhancement Alternative (Alt. A) - This alternative seeks to protect and enhance natural resources while allowing uses that do not have a significant effect on the natural resources. The number of developed recreation areas and facilities would remain essentially unchanged. More of the secondary road network would be closed to motorized travel which means fewer dispersed recreation areas would remain accessible by motor vehicle compared to the other alternatives. Dispersed, unregulated camping on most of the RMP lands would be prohibited. Land use activities would be focused and managed within environmentally suitable areas to reduce resource impacts and disturbances. ORV management within the study area would be discontinued by permanently closing the Yellow Zone and the portion of the Green Zone, located on Reclamation property. The Grant County ORV Park would encompass nearly 1,300 acres outside of the study area. Wildlife habitats in the Green and Yellow zones would be restored. Mosquito control spraying would be eliminated with this alternative.

Recreational Development Alternative (Alt. B) - This alternative seeks to emphasize the development of the recreational potential of Potholes Reservoir while minimizing the impact on natural resources. It includes the highest number of developed and primitive recreation facilities and sites. ORV opportunities would be expanded by allowing ORV riding along several designated trails leading to the western shore of Moses Lake. Also, a major portion of the currently closed Red Zone would become open seasonally to ORV use. Similar to the other action alternatives, land use activities would be focused and managed within environmentally suitable areas to reduce resource impacts and disturbances. A vegetation management plan would be developed which preserves some areas of undisturbed areas while allowing further development of recreation. While grazing would be strictly used for management of annual grasses with Alt. A and Alt. C, with Alt. B, the grazing program would be increased as a means of generating income. This alternative includes expansion of the existing State Park or development of a new one at the O'Sullivan site.

Conservation Alternative (Alt. C) - This alternative is Reclamation's preferred alternative. It seeks to balance the management agencies' and public's long-term vision for Potholes Reservoir recognizing the need to protect the natural and cultural environment while supporting the overall recreational interests of visitors. By combining elements and features from Alt. A and Alt. B, Reclamation believes Alt. C best satisfies the RMP goals and objectives.

A mix of developed recreation areas and "designated" dispersed camping areas would be provided to accommodate the demand for recreation facilities and sites, and to direct use to specific areas environmentally suited for public use. ORV use restrictions are proposed to improve wildlife habitat, wildlife populations, sand dune integrity, and vegetative cover. This would be accomplished by permanently closing the Yellow Zone and continuing to close the Red Zone to ORV use. This alternative includes expansion of the existing State Park or development of a new one at the O'Sullivan site. Mosquito control spraying would be restricted to the State Park. Additional protection to wildlife and their habitats would occur through restoration of habitats in the Yellow Zone; seasonal restrictions on watercraft operation at West Arm, Sand Islands, and East Lind Coulee Arm; increasing the red zone to include additional riparian/wetland areas; developing a vegetation management plan which preserves some areas of undisturbed areas while allowing continuing recreational use; and, mitigation of unregulated random camping at Sand Islands.

Fish and Wildlife Resources without the Project

Waterfowl - Potholes Reservoir is an important waterfowl hunting area within Washington as there are large numbers of Canada geese and mallards present in the fall and winter. The North Potholes

Reserve is an important molting area for waterfowl. Also, there is good quality nesting habitat for several duck species within the study area. Unfortunately, the presence of carp within many of the wetlands has limited waterfowl production, as well as constrained successful reproduction by various other marsh and water birds. Aside from destroying rooted aquatic vegetation and causing turbidity by roiling the water, they eat aquatic insects (USFWS 1980). Up to an eight-fold increase in waterfowl use and production was predicted by the Service with the elimination of carp. As early as 1964, WDG tried to control carp by constructing the Job Corps Dike to isolate the northern end of the reservoir, which was carp free, from the rest of the reservoir. By 1980, carp made-up 90% of the fish standing crop. WDG proposed isolating ponds from the reservoir with earthen dikes and then killing carp with rotenone (WDG 1980). Neither of these projects was successful in eliminating or even limiting carp.

Neotropical Migratory Birds - Neotropical migratory birds (NTMB) are species which breed in the United States and Canada and then migrate south to Mexico, Central or South America or the Caribbean to spend the winter. They do not include waterfowl, shorebirds, or herons and egrets, even though some species in these groups also winter south of the Mexico-United States border. There is widespread concern about the future of NTMB (Andelman and Stock 1994), since many of these species have experienced large population declines due to habitat destruction on the breeding grounds, wintering areas and along migration routes.

There were fifty-five birds listed as NTMB species which were observed during the Service's study, or otherwise documented within the study area. These include such species as flycatchers, warblers, vireos, buntings, various sparrows, blackbirds, and some raptors. In addition to riparian/wetland habitats, which is important for two-thirds of the NTMB within the study area, shrub-steppe habitat is also important to several species. Numbers of sage sparrows and sage thrashers have declined with the drastic reductions in required shrub-steppe habitat. The sage sparrow and sage thrasher are both State candidate species for listing as threatened or endangered and are both found within the study area where there is probable breeding evidence for both.

Colonial nesting birds - California gulls, ring-billed gulls, Forster's terns, and Caspian terns are colonial nesters which use some of the sand islands. Western and Clark's grebes are also colonial nesters which nest in emergent vegetation surrounding some of the islands and shoreline of the West Arm and the Crab Creek area. Great blue herons, black-crowned night-herons, great egrets, and double-crested cormorants nest in large numbers in riparian trees and shrubs in the North Potholes Reserve area. The American white pelican is another colonial nester which can be found in the study area. It uses Potholes Reservoir, particularly the West Arm area, during spring and fall migration. In addition,

non-breeders are sometimes found here during the summer months. The American white pelican is listed as an endangered species by WDFW.

Mammals - Mule deer are common on the study area, particularly in the North Potholes Reserve and the western boundary area. Large numbers are found in the winter in the good quality shrub-steppe just within and west of the study area. Beaver are found throughout the study area, with highest numbers in the northern portions. Other mammals in the study area include muskrat, mink, striped skunk, raccoon, coyote, badger, Nuttall's cottontail, black-tailed jackrabbit, long-tailed weasel, porcupine, Washington ground squirrel, and various small mammals.

Listed threatened and endangered species -

Bald eagle - Suitable habitat for bald eagles (*Haliaeetus leucocephalus*) includes those areas that are close to water and provide a substantial food base such as along rivers containing anadromous fish, good populations of resident fish, abundant waterfowl or mammal populations. Bald eagles are often found along the shores of reservoirs and rivers. Territory size and configuration are influenced by availability of perch trees, quality of foraging habitat and distance of nests from water supporting adequate food supplies.

Bald eagles usually nest in the same territories each year and often use the same nests repeatedly (Anthony and Isaacs 1989). Nest trees typically provide an unobstructed view of an associated water body and are often situated in prominent locations. Snags, and trees with exposed lateral limbs or those with dead tops often occur in nesting territories and are used as roosts, perch sites or access points to and from the nest.

Bald eagle winter habitat is mostly associated with areas of open, ice-free water where fish are available and/or waterfowl congregate (Stalmaster 1987). Additionally, eagles may be scattered throughout upland areas feeding on ungulate carrion, game birds, and rabbits (Swenson et al. 1981). The majority of the bald eagles wintering in central and eastern Washington are migrants (Fielder 1992). Some move relatively short distances to lower elevations or inland for food sources. Most eagles that breed in the Pacific Recovery Area winter in the vicinity of their nests. Within the study area, bald eagles are most common during the winter period of late October through March, depending on ice conditions. These birds commonly perch and roost in the North Potholes Reserve and on Peninsula South. There is no documented evidence of nesting in or near the study area. Because bald eagle numbers have improved significantly nationwide since it was listed, the Service proposed to de-list it and a final ruling will be made later this year.

Ute ladies'-tresses - This perennial orchid was listed as threatened in 1992. It was discovered in southeastern Idaho in 1996 along the upper Snake River and in 1997 in northern Washington. Ute ladies'-tresses (*Spiranthes diluvialis*) is typically found in wetland and riparian areas, including spring habitats, mesic to wet meadows, river meanders, and floodplains. There are no records for this species in the study area, although some appropriate habitat is present. There is a relatively narrow window for identifying this species when blooming (August to September). This species may be adversely affected by habitat modifications associated with livestock grazing, vegetation removal, excavation, construction activities, stream channelization, and other actions that alter hydrology or vegetative cover.

Candidate species -

Washington ground squirrel - Washington ground squirrels (*Spermophilus washingtoni*) are found in steppe and open shrub-steppe, where it prefers deep, loose soil for digging burrows. They primarily occur in arid, low elevation steppe grasslands that are relatively undisturbed. The largest concentrations of these ground squirrels are found in central Columbia Basin. It was documented still present within the southeast portion of the study area in 1999. Food items include a variety of forbs, grasses and some insects. Loss of habitat and isolation of colonies have been primary factors resulting in reduced populations. In addition, localized population reductions have occurred from shooting.

Other species of concern

Black tern - Black terns (*Chlidonias niger*) are small terns which eat primarily insects and can occur statewide, in or near wetlands and sloughs. They usually nest in small loose colonies in marshy wetlands in June. They construct flimsy nests of emergent vegetation that are often floating and are easily destroyed by wind or changing water levels. While they would most commonly be found moving through the area during migration, there are a few records of nesting black terns near the project area along the Frenchmen Hills and Winchester wasteways.

Columbia spotted frog - Columbia spotted frogs (*Rana pretiosa*) are medium-sized frogs and are found in or near perennial water bodies such as springs, ponds, warmwater marshes, overflow wetlands and bogs with non-woody wetland vegetation. They breed and lay eggs in warm, shallow margins of ponds, lakes, marshes or temporary pools. They are found in most of eastern Washington and have been observed in the project area. Some of the suspected reasons for their decline include wetland loss and degradation and the introduction of bullfrogs and nonnative fish species into spotted frog habitat.

Ferruginous hawk - This large hawk prefers open plains and brushy, open country and avoids forested areas. Ferruginous hawks (*Buteo regalis*) nest in trees along streams, bluffs, rock piles and artificial structures. They feed primarily on ground squirrels, rabbits and other small mammals. There is a confirmed nest site within three miles of the southern study area boundary.

Fringed myotis - Fringed myotis (*Myotis thysanodes*) is a bat which is associated with arid forest, desert, and arid grassland, especially near riparian areas. It roosts in caves, mines, rock crevices, and buildings.

Gray cryptantha - Gray cryptantha (*Cryptantha leucophaea*) is a regional endemic which has been found within the study area. It is a perennial member of the Borage family and has white flowers. It is basically restricted to sand dunes that have not completely stabilized and major threats include ORV use and increased weed invasions (WNHP and BLM 1999).

Loggerhead shrike - Loggerhead shrikes (*Lanius ludovicianus*) are robin-sized birds which will feed on anything they can subdue. They often feed on insects, but will take small birds, mammals and reptiles. Preferred habitat includes shrub-steppe and any semi-open area with shrubs, fences, powerlines or small trees for perches. They nest in trees or shrubs having dense foliage and are very shrubby, bushy and/or thorny. They have been documented nesting in the study area.

Long-eared myotis - The long-eared myotis (*Myotis evotis*) is more of a forest dweller which roosts in trees, buildings, and rock crevices. It forages over and around trees, and near water courses in arid regions.

Northern leopard frog - The northern leopard frog (*Rana pipiens*) has been found within the study area. Aside from the Pend Oreille River drainage, and areas along Crab Creek north of Moses Lake, it is only found in and near the study area. Within the study area it has been found in wetlands along Crab Creek and within the North Potholes Reserve. This species was recently listed as endangered by WDFW. It is not yet known what impacts mosquito control activities in the area have on this species; however, there is the potential that non-target insect species, which may be prey for this frog, are also affected.

Northern sagebrush lizard - The northern sagebrush lizard (*Sceloporus graciosus graciosus*) is primarily a shrub-steppe dweller, but also uses bouldered regions and forested slopes. They are typically a ground lizard and rarely climb into shrubs. They prefer fine gravel soils, but also occur on

sandy or rocky soil. They require rock crevices, mammal holes or similar cover for refuge. There are records of them within the study area.

Olive-sided flycatcher - The olive-sided flycatcher (*Contopus borealis*) seems to prefer mixed and broken forests with wooded streams and some wetland. The diet consists entirely of flying insects which they search for from high snags and perches. They would most likely be found in the study area during migration, where they would be uncommon.

Pale Townsend's big-eared bat - The Pale Townsend's big-eared bat (*Plecotus townsendii pallescens*) occurs in a variety of habitats from grasslands to forested areas. . It roosts in trees, building, and caves. It is one of the few bats in Washington which forages more in upland areas than in over water or in riparian habitat (Johnson and Cassidy 1997).

Peregrine falcon - Preferred habitat of peregrine falcons (*Falco peregrinus*) is open country with rocky cliffs for nesting, nearby rivers and lakes, and a significant prey base. Nest sites are usually fairly small ledges on cliff faces. Cliffs and bluffs used for nesting average about 150 feet tall. Waterfowl usually make up the bulk of the prey, but peregrines take virtually all bird species of smaller size. Peregrines nesting in eastern Washington appear to winter near their nest sites or move to lower areas with a more abundant winter prey base. There are a few peregrines sited in the area each year and they are most likely migrants. Because of significant increases in peregrine numbers, they were removed from the threatened and endangered species list in August, 1999.

Potholes meadow vole - Little is know about the Potholes meadow vole (*Microtus pennsylvanicus kincaidi*) which has been found in and around Moses Lake and Potholes Reservoir as well as one other location in northeast Washington. Its' requirements are probably similar to other meadow vole subspecies. Meadow voles prefer moist meadows and other wetlands and areas along streams, ponds, and small lakes. Their diet is comprised of forbs and grasses.

Small-footed myotis - The small-footed myotis (*Myotis ciliolabrum*) occurs in open, arid areas and commonly forages around cliffs, rock outcrops, and dry canyons (Johnson and Cassidy 1997). It roosts in cavities in cliffs, vertical banks, the ground, talus slopes, and under rocks. There is one record of this species which is either in or within a few miles of the study area.

Western burrowing owl - The western burrowing owl (*Athene cunicularia hypugea*) is generally found in open, broken or flat areas, including shrub-steppe and agricultural areas. An opportunistic feeder, it preys primarily on insects and small mammals, but also birds, fishes and amphibians, when

available. They use ground squirrel or other mammal burrows for shelter and nesting. They commonly nest in small colonies and have been documented nesting in the project area. The primary reason for the decline of burrowing owls has been habitat loss due to burrowing mammal control activities. Heavy ground surface disturbances, such as grazing and ORV activity, which reduces burrow availability, may be a management problem for burrowing owls within the study area.

Western sage grouse - The western sage grouse (*Centrocercus urophasianus phaios*) is a large grouse that inhabits the shrub-steppe and meadow steppe regions of eastern Washington (Hays et al. 1998). Suitable sage grouse habitat is typically sagebrush/bunchgrass stands having medium to high canopy cover with a diverse understory. They use sagebrush year round for food and cover, with a high forb use in summer. The drastic reduction in numbers and distribution of sage grouse in Washington is attributed primarily to loss and degradation of habitat (Hays et al. 1998). They are now listed by WDFW as a threatened species. Although there are no known recent documented records of sage grouse within the study area, they were known to use the potholes area south of Moses Lake before the area was flooded by O'Sullivan Dam (Yocom 1952).

Yuma myotis - Yuma myotis (*Myotis yumanensis*) is a bat that occurs in forested areas, forest edge, and open areas such as arid grasslands. It is more closely associated with open water than any other Washington bat (Johnson and Cassidy 1997). It roosts in caves, trees, and buildings. There is one record of this species which is either within the study area or within a few miles of the boundary.

HEP results - To gather baseline information and to better understand potential impacts from various recreation activities within the study area, a Habitat Evaluation Procedures (HEP) analysis on Potholes Reservoir was conducted in 1999 (USFWS 2000). While Service biologists collected the data, ran the models, and interpreted the results, personnel with Reclamation and WDFW were instrumental members of the HEP team, especially in the important planning stages.

HEP is a species-based habitat analysis procedure. The procedure assesses the value of the habitat for certain selected species over the life of the project. The species evaluated are selected either to represent entire groups of species (for example, mallards may be used to represent dabbling ducks) or because of some special value they have in the area (for example, popular game birds). For this project, criteria for species selection included use of representative cover types, ecological importance, sensitivity to human and habitat disturbance, and availability of adequate HSI models.

Once species are selected, models which describe a range of habitat values for that species are written or existing ones are selected. The models are based on published research on a particular species, as

well as input from experts on the species. These models generally relate certain aspects of the habitat, such as percent ground cover or height of vegetation, to the value of the habitat for the species. The measurement of a variable which may be important to a particular species (for example, height of shrubs) is scored on a scale from 0.0 to 1.0, with 0.0 being of no value and 1.0 being of highest value. The score for that variable is termed a suitability index (SI). An equation is then used which relates the variables in some manner. For example, if the first variable (V_1) is deemed two times as important as the second variable (V_2) by the literature and experts, then the equation in the model may appear as $2(V_1) + V_2$. The results of these equations are as habitat suitability indices (HSI) and may change over time as the habitat changes.

One of the goals of the HEP analysis was to determine impacts from recreational use on wildlife/vegetative communities; however, those impacts may be partially masked by the condition of the land before recreational impacts began occurring (USFWS, 2000). For example, all areas were heavily grazed in the early part of the century, which resulted in the destruction of native plant cover and the formation of extensive areas of active dunes (Zook 1978). Fire also likely impacted the native shrub-steppe habitat. Due to the arid climate and sandy soils, recovery of native vegetative communities is slow. Additionally, Franklin and Dyrness (1973) indicate that the uplands here are fragile and susceptible to invader plant establishment on disturbed sites. The competition by these invaders, many of which are also non-native, further hampers recovery of native communities.

Comparing areas within the study area which receive regular and heavy ORV use (i.e., the Green Zone) with control sites and other areas within the study area (WDFW 1997, USFWS 2000), it is clear that ORV use negatively impacts wildlife and their habitats. Along with lower Habitat Suitability Indices (HSIs), these areas also have: a lower percentage of cover of vegetation and cryptogams; higher percentage of weeds (including designated noxious weeds) in the plant communities; and lower numbers and diversity of breeding birds.

The Service's HEP study did not show definitively that dispersed recreation (aside from ORV use) had reduced habitat quality for the evaluation species. At the Lind Coulee site, which receives considerable dispersed recreational use, lower habitat quality was noted for three species when compared with the adjacent control site; however, habitat quality was slightly lower at the control site for two other species. At the Job Corps Dike, which receives more moderate use, the habitat quality was the same when compared with an adjacent control area, except for the yellow warbler, which had slightly poorer quality habitat in the control area. While habitat was not found to have been significantly impacted by some dispersed recreation activities for the evaluation species we looked at, we still believe that impacts occur in other ways. For example, human activities could interrupt important wildlife

behaviors; delay nesting or cause nest abandonment with some birds; result in accidental or purposeful (illegal collecting or shooting) harm or death for some species; and increase risk of accidental fire, which could result in long-term devastation to an area in this arid environment. The importance of human disturbance to wildlife within the study area was highlighted by WDFW (1997), especially for breeding birds.

The Washington Department of Fish and Wildlife, in the summer of 1999, completed a HEP analysis on the Desert Habitat Management Unit (HMU). The Desert HMU is immediately west of and adjacent to Potholes Reservoir and encompasses the same upland and wetland cover types with the exception of the Potholes Reservoir itself and the interior islands there. The Desert HMU has not been open to ORV use and has not been grazed by livestock in over 30 years. A comparison of the two sites shows that the Desert HMU has less exotic vegetation, more overall shrub cover, and a greater percentage of that shrub cover which is sagebrush (WDFW 1999). Comparing the Desert HMU and Potholes Reservoir study areas indicates that it would likely take many years without disturbance for the habitat at Potholes (particularly, upland habitat) to recover, and it may require active restoration.

In the future, (i.e. with selection of the No-action Alternative) we would anticipate that recreational use at Potholes Reservoir would continue to increase. This would likely cause at least minor adverse impacts to wildlife and their habitats, depending on how the use is monitored and controlled. Dispersed recreation and indiscriminate motorized travel on the area would likely increase. Depending on the time of year and the habitat impacted, this could have significant adverse impacts to wildlife. For example, increased dispersed camping in and near riparian forest and riparian shrublands would further disturb nesting birds, including NTMB and use of the trees and shrubs as thermal cover for deer and other animals. Additional indiscriminate motorized travel would cause habitat loss as well as disturbance to wildlife. Increased dispersed recreation would further increase risks of accidental fire in the area and allow weeds to continue to proliferate, especially in shrub-steppe and grassland areas.

As discussed earlier, grazing impacts from livestock have occurred in the study area in the past. Impacts are primarily from over-grazing and trampling of vegetation and compaction of soils. Aside from direct loss of habitat, this has also facilitated proliferation of weeds. While a grazing management plan is in place, it does not appear to be allowing adequate restoration of native plant communities.

Impacts to wildlife and their habitats could occur in the future from various developments. For example, there is a proposal to expand the existing State Park recreation facilities or develop a new one on the east shore of the reservoir. The Service's HEP study showed that habitat quality at the new proposed site was lowest of any of the surveyed areas, which may indicate this is a suitable site to

minimize adverse impacts to many wildlife species. However, the impact of the placement of this facility in this location should also be examined to see if increased visitation and use would adversely impact adjacent areas. We did not evaluate the potential expansion area at the existing State Park; however, we are aware that some quality shrub-steppe habitat would be removed or otherwise adversely impacted. The Service should be contacted for additional consultation/coordination if plans for the State Park to expand or for a new one to be developed are brought forward.

We anticipate that some situations may improve in the future with the No-action Alternative, simply as a result of the process of RMP development. This process has highlighted some deficiencies that have existed for a number of years due to unfamiliarity with the problem or lack of funding or staffing to address it. For example, this process has revealed some agricultural encroachment on Reclamation lands, which when rectified, may result in wildlife habitat being restored. The recent identification of Washington ground squirrels on the study site near dispersed recreation sites should help shape future management of that area. Finally, through this process, important natural and cultural resources have been highlighted, their values discussed, and some limiting factors identified, which should help guide future management, regardless of whether or not an RMP is implemented.

Fish and Wildlife Resources with the Project

Within the three RMP alternatives, there are a wide variety of actions that are proposed. A few of these are unique to a particular alternative, but most are common to at least one other alternative. Also, there are several actions which are common to all the alternatives. This CAR initially evaluates some of the potential impacts, adverse and beneficial, from common actions within several categories and then describes some of the potential impacts from actions specific to a particular alternative(s).

Recreation - Establishment of a near-shore no-wake zone in certain areas would reduce wave disturbance to nesting western and Clark's grebes, waterfowl, and other water birds, as well as spawning fish. It would also help maintain and perhaps improve development of wetland vegetation along the reservoir shoreline.

Impacts at dispersed recreational sites would be monitored and use and management approaches will be modified if impacts become unacceptable. This should help minimize adverse impacts from increased recreation pressure in the future.

Motorized land vehicle access (outside ORV areas) would be restricted to designated roads and parking areas only. That restriction, along with planned signage, should minimize some of the adverse

impacts associated with these roads as discussed earlier (weeds, fire potential, disturbance to wildlife, etc.).

Fish and Wildlife Management - Bald eagle wintering habitat would be protected and enhanced in the North Potholes and Peninsula South management areas, which would benefit this threatened species.

The number of carp-free ponds would be increased at West Arm and Crab Creek Arm management areas. This would benefit northern leopard frogs, waterfowl reproduction, and several other marsh and waterbirds.

Additional fishery management strategies would be developed and implemented based on study results. These strategies all appeared reasonable, at least superficially. Since the potential strategies listed were not split out by alternative, we assume they may occur regardless of the alternative selected. Therefore, we did not evaluate their potential impacts since that would not aid in determining differences between the alternatives based on potential impacts.

Likewise, there were several potential wildlife management strategies listed which may be implemented in the future based on study results. Again, we did not evaluate them since they were not split out by alternative and an evaluation of them would not have helped determine differences between alternatives.

Vegetation - Roads, trails and other disturbed areas where access is not allowed would be revegetated with native vegetation. This would discourage illegal use of the areas, help restore native wildlife habitats, as well as slow the spread of weeds in the study area.

Water quality - The proposed water quality and sediment quality monitoring programs should help determine potential problems that could affect fish and wildlife resources in the future. The routine testing of fish flesh for certain contaminants would further help identify and address potential problems in the future.

Preservation Alternative (Alt. A) - We find that the actions associated with the Preservation Alternative would likely result in fewer adverse impacts and more benefits to fish and wildlife resources than the other alternatives. In many cases, the actions associated with it goes much further in protecting wildlife and associated habitat than the actions in the other alternatives. For example, where Alt. B allows non-motorized boats and floating devices year round in the North Potholes Reserve, and Alt. C allows them only from July 15 to October 1, Alt. A does not allow them at all. In several cases, the actions in Alt. A and Alt. C are the same or similar and are more protective of wildlife and habitat than Alt. B. For

example, Alt. B would result in increased grazing in the North Potholes Reserve to generate income, Alt. A and Alt. C would restrict it to use for management of annual grasses only. This more restrictive grazing management would facilitate restoration of native plant communities, rather than allowing increased impacts from over-grazing.

A management action with significant beneficial effects is the prohibition of all ORVs from Reclamation lands. Tied with this is restoration and revegetation of wildlife habitats for the green and yellow zones. This is an important component due to the degraded condition of these areas. This would allow for reduction in weeds, increase in coverage of cryptogams, and a decrease in percentage of bare ground. Also, improvements in habitat quality for many species of wildlife should be realized, since the HEP study showed most of the evaluation species there had lower HSIs than the control site, particularly for the Green Zone (USFWS 2000). Aside from the eventual restoration of over 2,000 acres of wildlife habitat, eliminating some major disturbance factors to existing wildlife would benefit those species immediately. Also, the rare plant, gray cryptantha, may be able to inhabit some of the restored areas in the future, perhaps helping keep it from being listed as threatened or endangered in the future.. Totally eliminating ORV use should also significantly reduce illegal use outside of the designated zones and roads. This may benefit nesting waterfowl, NTMB, and even northern leopard frogs, whose potential habitat can be degraded by illegal ORV use (R. Friesz, WDFW, wildlife biologist, personal communication). It would further reduce the potential for accidental fires.

In several management areas, dispersed and unregulated camping, and motorized vehicle access would be eliminated under Alt. A. This would further give an opportunity for native plant communities to become restored and benefit associated wildlife species depending on that habitat. It would also reduce disturbance factors for some wildlife species, and should reduce the risk of accidental fires.

In the West Arm, Crab Creek Arm (north of the power line) and East Lind Coulee Arm management areas, personal watercraft and powerboats would be prohibited, rather than simply restricted to certain times or speeds as with Alt. B and Alt. C. While they all should improve conditions for spawning fish and nesting birds, such as grebes and waterfowl, Alt. A reduces the potential for disturbance factors outside of the primary nesting season. Additionally, it should be an action that is easier to enforce and potentially less confusing to the public.

Each of the three alternatives would result in development of vegetation management plans. Alt. A would preserve areas of undisturbed native vegetation, while Alt. C. would preserve areas of native vegetation, while allowing continuing recreational uses, and Alt. B. would allow for further development of recreation as well as preserve some undisturbed areas. While Alt. A and Alt. C may result in similar

acreages of preserved areas, by eliminating or reducing recreational use, Alt. A, does more in promoting long-term protection of the preserved area and reduction in disturbance to wildlife. This may serve to reverse, at least more locally, the declining trend of shrub-steppe habitat and associated species.

Mosquito control spraying would be prohibited on Reclamation lands which would eliminate any potential impacts to non-target insects. These insects may be important prey species for waterfowl, NTMB, northern leopard frog, and other fish and wildlife species.

Recreational Alternative (Alt. B) - This alternative expands the recreation potential and range of developed recreation opportunities at Potholes Reservoir. Of the three action alternatives and the No-action Alternative, it would result in the most adverse impacts to fish and wildlife resources. However, since public use would generally be discouraged or controlled in areas with environmental sensitivities or specific resource constraints, it does not ignore important resource issues. Furthermore, some of the actions proposed with this alternative would benefit fish and wildlife resources more than with No-action Alternative.

A source of significant impact from Alt. B. would be the opening of a major portion of the Red Zone to seasonal ORV use. Of the three ORV zones, the Red Zone receives the least disturbance and has the lowest amount of bare ground, highest percent cover of cryptogams, and lowest percent cover of weeds. As described earlier, ORV use within the study area has been shown to severely degrade native vegetation and adversely affect wildlife through disturbance. Increasing the area of legal ORV use, would likely increase illegal use on adjacent lands, as currently happens regularly.

Alt. B. includes the development of several new primitive campsites, to minimize dispersed, unregulated camping. This development could destroy existing habitats directly and lead to additional disturbance to wildlife at these new locations. As recreational demands continue to increase over time, current dispersed camping areas would be fully used, along with the new sites, with a net negative impact on habitat and wildlife. Adverse impacts to habitat and wildlife from dispersed camping would be at least partially offset by plans to develop management strategies to mitigate its' adverse environmental effects. Alt. B also includes expanding State Park managed lands with construction of additional camping areas and associated facilities near the existing State Park or at the O'Sullivan Site. As discussed earlier, HEP results at the O'Sullivan site revealed the lowest habitat quality of all sites evaluated, which indicates this site may be suitable for development. Unfortunately, we did not evaluate the habitat at the proposed expansion area near the current State Park and there is some apparently good quality

shrub-steppe habitat present there and in the vicinity that could be impacted. Development of either site would result in adverse impacts to habitat and associated wildlife species.

Increasing the grazing program to increase income, as proposed with Alt. B, could result in severe degradation of over 7,400 acres of Reclamation lands. As mentioned earlier, one of the major impacts to plant communities and habitat in the study area were from over-grazing nearly 100 years ago. While recovery of plant communities has occurred in some areas, it is very slow. Facilitating additional over-grazing through this alternative would cause long-term significant impacts to habitat and associated wildlife.

There are several actions under Alt. B which include developing new boat ramps or improving existing ones. This would likely result in more people using those areas, which would lead to further reduction in wildlife habitat from additional parking needed, and development of more dispersed camping sites. Again, disturbance from increased activities would further serve to adversely impact wildlife populations.

Unlike Alt. A and Alt. C, fisheries in the North Potholes management area would be managed using the same regulations as elsewhere on the reservoir. This eliminates the opportunity to provide additional protection to this sensitive area and would likely allow increased disturbance to wildlife present.

Finally, there are some seasonal no wake restrictions for certain management areas which would benefit nesting waterfowl, western and Clark's grebes, and various other marsh and waterbirds.

Conservation Alternative (Alt. C) - This alternative provides for future recreation development, controlled access and dispersed camping, a smaller area for ORV use, and the preservation and enhancement of natural and cultural resources. We find that this alternative would provide many more benefits to fish and wildlife and their habitats than adverse impacts. Also, while it would not result in as many benefits as implementing Alt. A, it has much more to offer for protection and enhancement of fish, wildlife and their habitats than either Alt. B or the No-action Alternative. In fact, where several of the proposed actions are very similar or the same between only Alt. A and Alt. C, there were fewer actions which were similar or the same between only Alt. B. and Alt. C.

As with Alt. A, a major benefit associated with Alt. C would be closing a significant amount of area to ORV use. With this alternative, the Yellow Zone would be permanently closed to ORV use. This would eliminate the major activity currently degrading vegetation communities in the Yellow Zone, which totals over 1,400 acres. Also, there would be active restoration/revegetation of wildlife habitats

under this alternative. This should allow for reduction of weeds, increase in coverage of cryptogams, and a decrease in percentage of bare ground. Improvements in habitat quality for many species of wildlife should also be realized as the HEP study showed that most of the evaluation species had lower HSI's here than within the control site (USFWS 2000). The disturbance factors related to ORV activities in this area, as shown by WDFW (1997), would be virtually eliminated. This would benefit nesting waterfowl, NTMB, and possibly the northern leopard frog. Furthermore, gray cryptantha may be able to inhabit some of the restored areas in the future.

With Alt. C, dispersed camping would be permanently or seasonally closed in the majority of the management areas. However, in most of the management areas, some of the currently used dispersed sites would be designated as open sites. Many of the dispersed sites to be closed would be those located in sensitive areas based on habitat or species presence. While this strategy would continue to allow camping and associated activities throughout much of the project lands, the net effect would be reduced impacts from that currently occurring. It further serves to limit growth in dispersed camping in the future as demand increases. Alt. C also includes expanding State Park managed lands with construction of additional camping areas and associated facilities near the existing State Park or at the O'Sullivan Site. As discussed above, HEP results at the O'Sullivan site revealed the lowest habitat quality of all sites evaluated, which indicates this site may be suitable for development. Unfortunately, we did not evaluate the habitat at the proposed expansion area near the current State Park and there apparently is some good quality shrub-steppe habitat present there and in the vicinity that could be impacted. Development of either site would result in adverse impacts to habitat and associated wildlife species

This alternative includes more restrictions on use of personal watercraft or motorized boats than either Alt. B or the No-action Alternative, although not as many as Alt. A. These restrictions should improve conditions for western and Clark's grebes, waterfowl, and other marsh and water birds, during the nesting season. Also, Alt. C does not include as many boat launch developments or improvements as are included with Alt. B. Developing and improving boat launches would likely result in more people using those areas, which would lead to further reduction in wildlife habitat from additional parking needed, and more dispersed recreational use in the vicinity. Again, disturbance from increased activities would further serve to adversely impact wildlife populations. Adverse impacts would be more than with Alt. A and less than with Alt. B.

As mentioned above, Alt. C includes a vegetation management plan and preservation of undisturbed native vegetation while allowing continued recreational uses. This preservation should help wildlife using that area along with adjacent habitats. Continued recreational uses would result in continuing

disturbance to some wildlife species as well as keep the risk of accidental fires higher. As with Alt. A, Alt. C maintains a strict grazing program for the management of annual grasses only. This management plan should facilitate restoration of native plant communities in areas currently grazed.

With Alt. C, mosquito control spraying would be limited to the State Park. This would limit the potential impacts to non-target insects on the majority of Reclamation lands. These insects may be important prey species for waterfowl, NTMB, northern leopard frog, and other fish and wildlife species.

Mitigation Recommendations

Mitigation for adverse impacts from implementing actions within the three alternatives could eliminate or significantly reduce adverse impacts, or otherwise compensate for the losses. Although more limited, even Alt. A could result in some potential adverse impacts which need to be mitigated.

- Mitigation actions for some adverse impacts could include restoration of native vegetation in various portions of the project area. For example, because of the slow recovery of plant communities from disturbance in this area, more active efforts may be needed in areas set aside for preservation. Restoration efforts under mitigation should be tied to monitoring and success criteria. That is, if initial restoration actions fall short of goals, additional actions would be necessary.
- Aside from simply revegetating closed roads, trails and other disturbed areas, efforts could be made to attempt to restore native plant “communities”, which is much more difficult, especially in this area.
- More aggressive weed control plans, above and beyond simply noxious weed control measures, should benefit native plant communities.
- The development of new campgrounds, boat launches, interpretive trails, etc. should take place in areas which minimize adverse impacts to fish and wildlife. That may mean using existing developed and dispersed sites whenever possible, even if these areas are not the most aesthetically-pleasing sites.

- Provide funding for additional law enforcement in the study area would help ensure various rules and regulations designed to protect habitat and fish and wildlife resources are being followed.

Measures aimed at protecting and enhancing certain species could take place under this RMP as mitigation. Some of these measures could include:

- special signage, seasonal road closures, firearms or shooting restrictions, and some vegetation management are measures which may improve conditions for Washington ground squirrels near Lind Coulee
- bald eagles roosts and regular perch sites could be protected with access restrictions
- with ongoing research, management measures to protect and enhance northern leopard frog habitat may become known
- current locations of gray cryptantha could be identified and measures used to protect habitat components
- interpretive information could be developed to educate the public on the valuable and unique habitats and associated unique species present and measures being employed to protect them
- because reproductive success for a large number of western and Clark's grebes appears to be low at Potholes Reservoir, and is likely due in part to recreational activities, Reclamation should fund a study which addresses these two species' ecology and potential impacts of recreation on them at Potholes Reservoir

Additional Recommendations

- In several areas, there is reference to monitoring for response of habitat and fish and wildlife to certain management actions and strategies and that if warranted, making needed changes. It is important to ensure that monitoring protocols and schedules are clearly established, as well as standards for determining when management changes should be developed.
- Some of the actions proposed under the various alternatives, such as development of additional State Park lands and the construction of various developments, should receive additional review and evaluation from the Service in the future, pursuant to the Fish and Wildlife Coordination Act.

- The placement of Watchable Wildlife trails and sites needs to carefully consider the tradeoffs of getting people close to certain wildlife species to be able to appreciate them and degrading their habitat or otherwise disturbing them.
- The RMP should allow for adaptive management. As new information becomes available from other research, monitoring, etc., management strategies and policies should accommodate this. For example, seasonal closures are used for several actions for the three alternatives and these dates may need to be refined in the future as research continues or as monitoring shows that impacts are occurring outside of the restricted window.

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